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Re: Comments on Preliminary draft of Biota Transfer SPOS, Red River Valley Water Supply Project

Dear Signe:

Please note that some changes have been made from the draft comments submitted October 15. Most of the changes are editorial and clarifications.

These are preliminary comments because there are a number of unanswered questions concerning the overall scope and methodology to be used in the studies done for the federal Environmental Impact Statement. The comments are as follows:

1. There are a number of water diversion proposals in North Dakota that may cause damaging biota transfer, but the most serious biota transfer concern is the proposal to divert Missouri River water to the Red River Basin. At this time, the comments herein may be considered to focus on this proposal, with the caveat that other proposals--or other aspects of the proposals--may result in other comments.

2. As previous Minnesota Department of Natural Resources (MDNR) comments have indicated, any Biota Transfer study should be conducted under the requirements of the National Environmental Policy Act, with the Dakota Water Resources Act being incidental (with respect to substantive content of the study.) In other words, the objective of doing the study is constrained by the definitions and process as described by CEQ regulations, and the case law under which this Act has been litigated over a number of years. In addition, methodologies of impact assessment have been developed under these regulations. Guidance as to preparation of studies (beyond what is in regulations) is provided in the NEPA Deskbook, which has been previously cited by MDNR.

This is also true for the rest of the Specific Plans of Study that concern environmental topics, whereby

substantive content for the federal Environmental Impact Statement is being prepared. In other words, the bulk of the Scopes of Work (which are written to yield substantive content) are done under the auspices of NEPA rather than DWRA. (Portions of the Needs study and associated portions of the Hydrology study being the exceptions.)

The comments herein are provided under these assumptions. If USBR considers that the Dakota Water Resources Act results in different assumptions, or results in change to the SPOSs, MDNR needs to know that.

3. The Biota Transfer SPOS is sub-titled "*Risk and Consequence Analysis for biological invasions potentially associated with inter-basin water transfers: problem formulation and development of the conceptual model*." We are pleased that the Biological Resources Section of the USGS, Columbia Environmental Research Center in Missouri is assigned to complete this study.

4. We note that this SPOS is to develop a conceptual model regarding "risk and consequence analysis." We are not convinced this adequately fulfills the requirement of an EIS to assess all important impacts of biota transfer from the Missouri River. Basically, we believe that the fundamental purpose of the impact assessment requirements of NEPA and CEQ regulations is to identify harmful impacts, explore alternatives, and identify measures to reduce impacts. In our experience, the "risk assessment model" is *centrally* a decision model concept, rather than a harm reduction concept, even though incidentally such a mathematical model can indicate measures to reduce consequences.

As an example of our concerns as to whether this work will fulfill NEPA requirements, we note on page 19 of the SPOS, it is said this model is crucially dependent on certain kinds of data: "*The derivation of probabilities for biota of concern will only be as good as the data used in their calculation, which necessarily means the characterization of risk must be completed in parallel with an evaluation of data quantity and data quality. As a source of uncertainty, data quality and quantity will be critical to the interpretation of species invasion probabilities*."

It appears as if this is to be a numerical model and numerical presentation. We are very concerned that such data do not exist. The extensive biota transfer impact study that was recently done by the Corps of Engineers for the Devils Lake outlet proposal, (described in the recently released draft EIS) noted the great problems concerning lack of data in both Devils Lake and the Red River basin. Therefore, applying this conclusion to the above quote, it would appear that calculating probabilities is not possible because the data are non-existent.

Similarly, page 21 of the SPOS refers to data that are "critically" needed for the consequence analysis. The draft EIS on the Devils Lake outlet has *already determined* that such data are simply not available. The SPOS should specifically resolve this apparent contradiction.

Finally, the schedule for begin and end dates for work products in this SPOS is early, and is prior to the completion of major related topics that are listed in the EIS portion of the time line for task completion. For example, "Measures of adverse effects" (task 2.1.4.2 in the Biota Transfer SPOS) is scheduled to be completed 10/24/03, while the Riverine/Riparian impact analysis section (7.1.1) has completion dates

substantially later than this. (We assume that this latter section is directed to the analysis of impacts to existing aquatic systems and biota of downstream bodies of water such as Lake Winnipeg, and Minnesota lakes and rivers.) This work product should result in identifying and examining mitigation measures to reduce damages, for example, and will certainly develop information regarding "measures of adverse effects" if it is a normal EIS.

5. The Minnesota DNR has previously commented that a numerical presentation of probabilities can be misleading because such a presentation does not portray major key assumptions that are themselves open to questions, and are by nature subjective. Changing the assumptions slightly could result in large changes in numbers that portray numerical risk and probabilities. In addition, non-experts can be misled by such presentations, and may give undue attention (for example) to small differences in numbers, and/or to drop from consideration the inherent subjective assumptions.

Given the major political content of the proposal for diversion of Missouri River water to the Red River basin, and the large number of involved and affected stakeholders, the methodology chosen needs to be explainable to these stakeholders. Practically speaking, the risk assessment and EIS will not work if it improperly uses a "black box" methodology to address one of the most important interstate and international topics concerning a diversion of the Missouri River to the Red River Basin, the biota transfer problem. A (simplified) characterization of a risk assessment is as follows: input data on one side of a black box which can be seen as objective, and output data on the other side black box, which also looks objective (such as comparative tables of probabilities.) But the problem is that, however difficult for the authors, stakeholders (including the public) must understand all the assumptions and arcane data manipulations inside the black box if the stakeholders are to accept their validity, and understand the method's limitations.

6. On page 18, Pathway Analysis section, we quote: "*Differentiation between invasions associated with intentional transfers from those that are unintentional and largely accidental will be critical to the uncertainty analysis and associated evaluation of economic consequences . . . . .*"

It is our opinion that based on how little data exist and (perhaps even more importantly) how little is understood about key ecological relationships, this differentiation appears to be impossible *if one assumes the methodological presentation of such differentiation must be numerical*.

7. The Minnesota DNR prepared the methodology that was used by the COE when it contracted to have the biota transfer study done of the Devils Lake outlet proposal. (Note: The COE modified it in key areas, however, while still maintaining the essential methodology. DNR submitted comments on the changes that were made, and submitted comments on the draft EIS pertaining to the biota transfer topic.)

In addition, the MDNR recommended to USBR specific changes in the methodology to expand it to apply to the possibility of a Missouri River water diversion. This was done during the earlier round of Technical Committee meetings.

The methodology from the MDNR proposed Scope of Work regarding biota transfer on Devils Lake was derived from four sources:

a) Accepted impact assessment methods as developed under 30 years of CEQ regulations, and under a 30 year old Minnesota law modeled on the federal law.

b) Practices and methods for addressing invasive species that are being used in Minnesota and elsewhere. These include regulatory responses, control of invasive exotic species, and public policy responses to the possible creation of new pathways for dispersal of such species. For example, Minnesota law requires boating restrictions when the invasive aquatic plant Eurasian water milfoil appears in a Minnesota water. In an example relevant to North Dakota, and pointed out by MDNR comments on the Devils Lake outlet proposal, as of this writing, the only known location of Eurasian water milfoil in the Red River Basin is in the Sheyenne River by the Baldhill Dam in North Dakota. Should this species appear in the Red River, Minnesota law would require boating restrictions on the Minnesota side of the river.

This illustrates that Minnesota is reacting to the appearance of invasive species with control methods. It is likely, for example, Minnesota might immediately treat a lake where zebra mussel or the zander appeared in the Red River basin (Minnesota portion.)

What this means is that the proposed risk assessment methodology regarding existing pathways and likelihood of transfer *without the project* must take into account societal reactions to the expansion of damaging species, in order for it to be a realistic numerical assessment. Such reactions are already occurring in North Dakota. Since the 1999 study done by North Dakota State University that termed Devils Lake a "hub" for the spread of exotic species, North Dakota has strengthened regulation of such species (this study was cited in previous MDNR correspondence.) Another illustration of what MDNR feels is a proper response to expansion of exotic species concerns the proposed Devils Lake outlet. MDNR has requested that the COE describe what it would do if the Devils Lake outlet is constructed and zebra mussel then appeared in Devils Lake. We have suggested the proper public policy response would be to shut down the outlet.

In addition, in developing the proposed methodology, we looked at research regarding pathogens, the movement and economic damage of pathogens, and risk protocols regarding introduction of pathogens incidental to introduction of species for beneficial purposes.

c) Methodology developed for assessing the risk of escape and assessing ecological and human health damages of genetically modified organisms. We discovered that this methodology is very applicable when applied to assessing risk of introducing damaging exotic species, and containment of such species. (See MDNR letters to USBR, and comment #9 below.)

d) Methodology regarding the 5 major elements of a river system (biology, water quality, geomorphology, hydrology, and energy inputs/pathways (See MDNR comments to Mr. Dennis Breitzman, December 14, 1999 and March 15, 2000.)

8. We are concerned that the SPOS does not adequately reflect past discussions and agreements during the previous round of Technical Team meetings. All past correspondence to the Bureau of Reclamation on the biota transfer topic, and the MDNR comments on the Devils Lake outlet draft EIS, should be submitted to individual team members from the Columbia Research Center. Such comments are relevant to this current work. In addition, all comments submitted to the USBR by the MDNR during the Planning Phase I and II

studies, and during the first round of Technical Committee meetings in general should be submitted, since most contain information specifically related to this topic, or to related topics such as methods for addressing the EIS studies.

9. The language on page 22, section 2.2 "Engineering Specifications" does not adequately describe the necessary task required for a NEPA impact assessment, and its required alternatives analysis. The approach of using a "water treatment" plant to prevent transfer of damaging biota began with the studies of the NAWS project. A federal EA was done on this project, which was internal to the state of North Dakota. As pointed out in earlier MDNR comments, and comments on the NAWS project, MDNR believes the water treatment concept is flawed and the risk assessment that was done did not adequately address potential impacts. The proper model is rather a "biota containment" model. Such a conceptual model has been developed by the Edmonds Institute, and was referenced in MDNR comments to the USBR previously.

A water treatment concept *could* be used at some point in the development of a biota containment *system*. A water treatment plant is thus logically a *type* of biota containment, or a component of a larger system. After a proper impact assessment, for example, a biota containment system may necessitate complete breakage of the pathway, based on a recognition and need that water treatment plants fail and the consequences of failure is very damaging in certain cases. An example of this *biota containment approach* could be water injection into an aquifer, and withdrawal some miles away, and some years later (during droughts.)

As pointed out in previous comments, therefore, a water treatment plant is a *possible* solution to an as yet unidentified problem (or menu of biota transfer problems); therefore, it cannot be part of this Scope of Work. This issue was previously settled during Technical Committee discussions. Please change the language accordingly.

10. The SPOS, and the handout at the Technical Committee meeting, seems to prominently rely on cost-benefit or economic damages as being a key factor in this study (see for example page 19.) NEPA and CEQ regulations point out that economic studies may be part of the assessment of impacts. MDNR comments have previously pointed out that the impacts of biota transfer primarily fall into three categories, ecological effects, natural resource effects, and economic effects. The SPOS on biota transfer needs to fully address these three impacts.

11. The language in the SPOS relating most closely to CEQ and EIS requirements regarding the actual impact assessment needed is the language referring to "Consequence" analysis. Yet the entire SPOS contains little specific explanation as to how this will be accomplished. (We note, however, that some of the groundwork for portions of an impact assessment is supplied in the document.) And what is said raises some red flags: "*Measurements of adverse effects, traditionally identified as measurement endpoints, are used to quantify exposure and effects in the risk assessment*."(p. 17.) This SPOS needs to use CEQ methodology, not risk assessment methodology, as the guide for measuring adverse effects. A proper assessment of the risk of biota transfer must not reduce the importance of certain adverse impacts only because they do not easily yield themselves to numerical measurement. In other words, numerical risk assessments only portray a subset of possible adverse environmental impacts of biota transfer.

12. The purpose of the bibliography in the SPOS is unclear, since many references are included in it that

are not cited. Some of the studies cited are known to be problematic based on our review of the Devils Lake outlet proposal. For example, some of the listed studies of existing pathways apparently assumed no governmental response to controlling the spread of damaging species, and seemed to conclude that the spread of such species was inevitable. Even though some of the cited studies are published, they have not been subject to peer review.

Conclusions and main questions

On page 22, reference is made to the possible completion of "interim progress reports." The first such report should be finalized in time to include a reaction to it in comments pursuant to the December comment deadline listed in the Notice of Intent to prepare an EIS. A draft written report should be prepared prior to the November 18 Technical Team meeting, giving attendees adequate time to read it. It should address questions raised in these comments, especially the following:

1) How are the requirements of CEQ regulations pertaining to the EIS to be fulfilled by this Scope of Work, which seems to rely primarily on a numerical risk assessment? Is not this study a NEPA study, and, if not, what part of it is done under the requirements of DWRA?

2) How will a numerical risk assessment (see above specific references) be accomplished, given the finding in the draft EIS on the Devils Lake outlet that data crucial to such an analysis is not to be found?
3) Will the biota containment model be used in the Biota assessment rather than assuming a water treatment concept is the answer?

4) How will previous MDNR comments regarding the biota transfer studies necessary for an EIS be addressed in the Scope of Work?

5) How will adverse impacts resulting from biota transfer that do not lend themselves to numerical portrayal be addressed in this study, and how will they be given equal weight if probability calculations are to be used?

6) How might the risk assessment and biota containment model used by the Edmonds Institute be modified to apply to the problem of properly portraying risk, and in assessing containment measures, for the proposal to divert Missouri River water to the Red River basin?

7) How will ecological and natural resource impacts not conducive to portrayal in economic terms be addressed in the risk and consequence assessment?

8) Is this SPOS designed to fulfill NEPA requirements, or is intended to be used primarily as a decision tool for various DWRA requirements, such as a report to Congress? Are there interim reports from USBR to Congress that are intended to occur prior to the completion of the draft EIS that are intended to include any information on biota transfer, or work products from the Columbia Research Center group?

Sincerely,

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